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**Crocker et al.**

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(54) **ELECTRODES FOR MICROFLUIDIC APPLICATIONS**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 505 days.

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(57) **ABSTRACT**

An electrode device for high pressure applications. These electrodes, designed to withstand pressure of greater than 10,000 psi, are adapted for use in microfluidic devices that employ electrokinetic or electrophoretic flow. The electrode is composed, generally, of an outer electrically insulating tubular body having a porous ceramic frit material disposed in one end of the outer body. The pores of the porous ceramic material are filled with an ion conductive polymer resin. A conductive material situated on the upper surface of the porous ceramic frit material and, thus isolated from direct contact with the electrolyte, forms a gas diffusion electrode. A metal current collector, in contact with the gas diffusion electrode, provides connection to a voltage source.

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(52) **U.S. Cl.** ..... **204/600; 204/280; 264/42**

(58) **Field of Classification Search** ..... **204/600, 204/280, 432; 264/43, 42; 156/89.12, 89.14**

See application file for complete search history.

**16 Claims, 1 Drawing Sheet**

